

WHAT IS CLAIMED IS:

1. An ink-jet printing system, comprising:

an ink carriage detachably provided to the ink-jet printing system;

5 an ink-jet print head mounted on the ink carriage;

a guiding member configured to support the ink carriage at operational positions of the ink carriage including a home position and to be disengaged from the ink carriage to replace the ink carriage; and

10 a supporting member arranged at a position under the ink carriage at the home position to receive the ink carriage when the guiding member is disengaged from the ink carriage at the home position.

15 2. The ink-jet printing system according to Claim 1, wherein the supporting member includes a horizontal surface and a vertical surface, the horizontal surface having a first predetermined gap from a bottom surface of the ink carriage at the home position and receiving the bottom
20 surface of the ink carriage when the guiding member is disengaged from the ink carriage and the vertical surface having a second predetermined gap from a side surface of the ink carriage when the horizontal surface receives the bottom surface of the ink carriage.

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3. The ink-jet printing system according to Claim 2,
further comprising:

a sealing member configured to be lifted to seal the
ink-jet print head and movably mounted at a position under
5 the ink carriage at the home position with a third
predetermined gap from the ink-jet print head greater than
the first predetermined gap between the ink carriage and the
horizontal surface of the supporting member.

10 4. The ink-jet printing system according to Claim 1,
further comprising:

a positioning member configured to stop horizontal
movements of the ink carriage from the home position.

15 5. The ink-jet printing system according to Claim 4,
wherein the positioning member is configured to be lifted to
a first predetermined position.

20 6. The ink-jet printing system according to Claim 5,
wherein the positioning member is engaged at the
predetermined position with a positioning detent formed on a
bottom side of the ink carriage.

25 7. The ink-jet printing system according to Claim 1,
wherein the supporting member includes a frame receptacle

configured to be lifted to a second predetermined position.

8. The ink-jet printing system according to Claim 1, the supporting member comprising:

5 a first supporting member including a U-shaped member fixedly provided to the ink-jet printing system for holding the ink carriage when the guiding member is disengaged from the ink carriage at the home position; and

a second supporting member including a plate-like
10 member configured to be lifted to a third predetermined position for stopping horizontal movements of the ink carriage from the home position when the guiding member is disengaged from the ink carriage at the home position.

15 9. An ink-jet printing system, comprising:

an ink-jet print head;

ink carrying means detachably provided to the ink-jet printing system for carrying the ink-jet print head;

guiding means for supporting the ink carrying means at
20 operational positions of the ink carrying means including a home position and being disengaged from the ink carrying means to replace the ink carrying means; and

supporting means for receiving the ink carrying means when the guiding means is disengaged from the ink carrying
25 means at the home position, the supporting member being

arranged at a position under the ink carrying means at the home position.

10. The ink-jet printing system according to Claim 9,
5 wherein the supporting means includes a horizontal surface and a vertical surface, the horizontal surface having a first predetermined gap from a bottom surface of the ink carrying means at the home position and receiving the bottom surface of the ink carrying means when the guiding means is
10 disengaged from the ink carrying means and the vertical surface having a second predetermined gap from a side surface of the ink carrying means when the horizontal surface receives the bottom surface of the ink carrying means.

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11. The ink-jet printing system according to Claim 10, further comprising:

sealing means configured to be lifted to seal the ink-jet print head and movably mounted at a position under the
20 ink carrying means at the home position with a third predetermined gap from the ink-jet print head greater than the first predetermined gap between the ink carrying means and the horizontal surface of the supporting member.

25 12. The ink-jet printing system according to Claim 9,

further comprising:

positioning means for stopping horizontal movements of the ink carrying means from the home position.

5 13. The ink-jet printing system according to Claim 12, wherein the positioning means is lifted to a first predetermined position.

10 14. The ink-jet printing system according to Claim 13, wherein the positioning means is engaged at the predetermined position with a positioning detent formed on a bottom side of the ink carrying means.

15 15. The ink-jet printing system according to Claim 9, wherein the supporting means includes a frame receptacle configured to be lifted to a second predetermined position.

 16. The ink-jet printing system according to Claim 9, the supporting means comprising:

20 first supporting means including a U-shaped member fixedly provided to the ink-jet printing system for holding the ink carrying means when the guiding means is disengaged from the ink carrying means at the home position; and

 second supporting means including a plate-like member
25 configured to be lifted to a third predetermined position

for stopping horizontal movements of the ink carrying means from the home position when the guiding means is disengaged from the ink carrying at the home position.

5 17. A method of manufacturing an ink-jet printing system, comprising the steps of:

 mounting an ink carriage including an ink-jet print head to the ink-jet printing system;

 applying a guiding member configured to support the
10 ink carriage at operational positions of the ink carriage including a home position and to be disengaged from the ink carriage to replace the ink carriage; and

 installing a supporting member arranged at a position under the ink carriage at the home position to receive the
15 ink carriage when the guiding member is disengaged from the ink carriage at the home position.

 18. The method of manufacturing an ink-jet printing system according to Claim 17, wherein the supporting member
20 includes a horizontal surface and a vertical surface, the horizontal surface having a first predetermined gap from a bottom surface of the ink carriage at the home position and receiving the bottom surface of the ink carriage when the guiding member is disengaged from the ink carriage and the
25 vertical surface having a second predetermined gap from a

side surface of the ink carriage when the horizontal surface receives the bottom surface of the ink carriage.

19. The method of manufacturing an ink-jet printing
5 system according to Claim 17, further comprising the steps
of:

mounting a sealing member configured to be lifted to
seal the ink-jet print head and mounted at a position
under the ink carriage at the home position with a third
10 predetermined gap from the ink-jet print head greater than
first predetermined gap between the ink carriage and the
horizontal surface of the supporting member.

20. The method of manufacturing an ink-jet printing
15 system according to Claim 17, further comprising the steps
of:

providing a positioning member configured to stop
horizontal movements of the ink carriage from the home
position.

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21. The method of manufacturing an ink-jet printing
system according to Claim 20, wherein the positioning member
is configured to be lifted to a first predetermined position.

25 22. The method of manufacturing an ink-jet printing

system according to Claim 21, wherein the positioning member is engaged at the predetermined position with a positioning detent formed on a bottom side of the ink carriage.

5 23. The method of mounting the ink-jet printing system according to Claim 17, wherein the supporting member includes a frame receptacle configured to be lifted to a second predetermined position.

10 24. The method of mounting the ink-jet printing system according to Claim 17, further comprising the steps of:

 installing a first supporting member including a U-shaped member fixedly provided to the ink-jet printing system for holding the ink carriage when the guiding member is disengaged from the ink carriage at the home position; and

 mounting a second supporting member including a plate-like member configured to be lifted to a third predetermined position for stopping horizontal movements of the ink carriage from the home position when the guiding member is disengaged from the ink carriage at the home position.

25 25. An ink-jet printing system, comprising:
 an ink carriage detachably provided to the ink-jet

printing system;

an ink-jet print head mounted on the ink carriage;

a guiding member configured to support the ink carriage at operational positions of the ink carriage

5 including a home position and to be disengaged from the ink carriage to replace the ink carriage; and

a sealing unit which integrally comprises:

a frame including a supporting member arranged at a position under the ink carriage at the home position to
10 receive the ink carriage when the guiding member is disengaged from the ink carriage at the home position; and

a sealing member configured to be lifted to seal the ink-jet print head and movably mounted to the frame at a position under the ink carriage at the home position with a
15 predetermined gap from the ink-jet print head greater than another predetermined gap between the ink carriage and a horizontal surface of the supporting member contacting the ink carriage.

20 26. An ink-jet printing system, comprising:

an ink-jet print head;

ink carrying means detachably provided to the ink-jet printing system for carrying the ink-jet print head;

guiding means for supporting the ink carrying means at
25 operational positions of the ink carrying means including a

home position and being disengaged from the ink carrying means to replace the ink carrying means; and

a sealing unit which integrally comprises:

framing means including a supporting means

5 arranged at a position under the ink carrying means at the home position for receiving the ink carrying means when the guiding means is disengaged from the ink carrying means at the home position; and

sealing means for sealing the ink-jet print head,

10 wherein the sealing means is lifted to seal the ink-jet print head and movably mounted at a position under the ink carrying means at the home position with a predetermined gap from the ink-jet print head greater than another predetermined gap between the ink carrying means and a
15 horizontal surface of the supporting means contacting the ink carriage.

27. A method of manufacturing an ink-jet printing system, comprising the steps of:

20 mounting an ink carriage including an ink-jet print head to the ink-jet printing system;

applying a guiding member configured to support the ink carriage at operational positions of the ink carriage including a home position and to be disengaged from the ink
25 carriage to replace the ink carriage; and

installing a sealing unit which integrally comprises a frame including a supporting member arranged at a position under the ink carriage at the home position to receive the ink carriage when the guiding member is disengaged from the ink carriage at the home position and a sealing member
5 configured to be lifted to seal the ink-jet print head and movably mounted at a position under the ink carriage at the home position with a predetermined gap from the ink-jet print head greater than another predetermined gap between
10 the ink carriage and a horizontal surface of the supporting member contacting the ink carriage.

28. An image forming apparatus, comprising:
a housing; and
15 an ink-jet printing system which comprises,
an ink carriage detachably provided to the ink-jet printing system;
an ink-jet print head mounted on the ink carriage;
20 a guiding member configured to support the ink carriage at operational positions of the ink carriage including a home position and to be disengaged from the ink carriage to replace the ink carriage; and
a supporting member arranged at a position under
25 the ink carriage at the home position to receive the ink

carriage when the guiding member is disengaged from the ink carriage at the home position.

29. The image forming apparatus according to Claim
5 28, wherein the supporting member includes a horizontal surface and a vertical surface, the horizontal surface having a first predetermined gap from a bottom surface of the ink carriage at the home position and receiving the bottom surface of the ink carriage when the guiding member
10 is disengaged from the ink carriage and the vertical surface having a second predetermined gap from a side surface of the ink carriage when the horizontal surface receives the bottom surface of the ink carriage.

15 30. The image forming apparatus according to Claim 29, further comprising:

a sealing member configured to be lifted to seal the ink-jet print head and movably mounted at a position under the ink carriage at the home position with a third
20 predetermined gap from the ink-jet print head greater than the first predetermined gap between the ink carriage and the horizontal surface of the supporting member.

31. The image forming apparatus according to Claim
25 28, further comprising:

a positioning member configured to stop horizontal movements of the ink carriage from the home position.

32. The image forming apparatus according to Claim
5 31, wherein the positioning member is configured to be lifted to a first predetermined position.

33. The image forming apparatus according to Claim
32, wherein the positioning member is engaged at the
10 predetermined position with a positioning detent formed on a bottom side of the ink carriage.

34. The image forming apparatus according to Claim
28, wherein the supporting member includes a frame
15 receptacle configured to be lifted to a second predetermined position.

35. The image forming apparatus according to Claim
28, the supporting member comprising:

20 a first supporting member including a U-shaped member fixedly provided to the ink-jet printing system for holding the ink carriage when the guiding member is disengaged from the ink carriage at the home position; and

a second supporting member including a plate-like
25 member configured to be lifted to a third predetermined

position for stopping horizontal movements of the ink carriage from the home position when the guiding member is disengaged from the ink carriage at the home position.

5 36. An image forming apparatus, comprising:
 a housing; and
 an ink-jet printing system which comprises,
 an ink-jet print head;
 ink carrying means detachably provided to the
10 ink-jet printing system for carrying the ink-jet print head;
 guiding means for supporting the ink carrying
 means at operational positions of the ink carrying means
 including a home position and being disengaged from the ink
 carrying means to replace the ink carrying means; and
15 supporting means for receiving the ink carrying
 means when the guiding means is disengaged from the ink
 carrying means at the home position, the supporting member
 being arranged at a position under the ink carrying means
 at the home position.

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 37. The image forming apparatus according to Claim
 36, wherein the supporting means includes a horizontal
 surface and a vertical surface, the horizontal surface
 having a first predetermined gap from a bottom surface of
25 the ink carrying means at the home position and receiving

the bottom surface of the ink carrying means when the
guiding means is disengaged from the ink carrying means and
the vertical surface having a second predetermined gap from
a side surface of the ink carrying means when the horizontal
5 surface receives the bottom surface of the ink carrying
means.

38. The image forming apparatus according to Claim
37, further comprising:

10 sealing means configured to be lifted to seal the ink-
jet print head and movably mounted at a position under the
ink carrying means at the home position with a third
predetermined gap from the ink-jet print head greater than
the first predetermined gap between the ink carrying means
15 and the horizontal surface of the supporting member.

39. The image forming apparatus according to Claim
36, further comprising:

positioning means for stopping horizontal movements of
20 the ink carrying means from the home position.

40. The image forming apparatus according to Claim
39, wherein the positioning means is lifted to a first
predetermined position.

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41. The image forming apparatus according to Claim 40, wherein the positioning means is engaged at the predetermined position with a positioning detent formed on a bottom side of the ink carrying means.

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42. The image forming apparatus according to Claim 36, wherein the supporting means includes a frame receptacle configured to be lifted to a second predetermined position.

10 43. The image forming apparatus according to Claim 36, the supporting means comprising:

first supporting means including a U-shaped member fixedly provided to the ink-jet printing system for holding the ink carrying means when the guiding means is disengaged
15 from the ink carrying means at the home position; and

second supporting means including a plate-like member configured to be lifted to a third predetermined position for stopping horizontal movements of the ink carrying means from the home position when the guiding means is disengaged
20 from the ink carrying at the home position.

44. An image forming apparatus, comprising:
a housing; and
an ink-jet printing system comprising:

25 an ink carriage detachably provided to the ink-

jet printing system;

an ink-jet print head mounted on the ink carriage;

a guiding member configured to support the ink carriage at operational positions of the ink carriage including a home position and to be disengaged from the ink carriage to replace the ink carriage; and

a sealing unit which integrally comprises:

a frame including a supporting member arranged at a position under the ink carriage at the home position to receive the ink carriage when the guiding member is disengaged from the ink carriage at the home position; and

a sealing member configured to be lifted to seal the ink-jet print head and movably mounted to the frame at a position under the ink carriage at the home position with a predetermined gap from the ink-jet print head greater than another predetermined gap between the ink carriage and a horizontal surface of the supporting member contacting the ink carriage.

45. An image forming apparatus, comprising:

a housing; and

an ink-jet printing system comprising:

an ink-jet print head;

ink carrying means detachably provided to the
ink-jet printing system for carrying the ink-jet print head;

guiding means for supporting the ink carrying
means at operational positions of the ink carrying means

5 including a home position and being disengaged from the ink
carrying means to replace the ink carrying means; and

a sealing unit which integrally comprises:

framing means including a supporting means
arranged at a position under the ink carrying means at the
10 home position for receiving the ink carrying means when the
guiding means is disengaged from the ink carrying means at
the home position; and

sealing means configured to be lifted to
seal the ink-jet print head and movably mounted at a
15 position under the ink carrying means at the home position
with a predetermined gap from the ink-jet print head greater
than another predetermined gap between the ink carrying
means and a horizontal surface of the supporting means
contacting the ink carriage.